Amendments to the Specification:

In the Description of the Prior Art please amend the paragraph that starts at 7 on page 2 as follows:

As can be appreciated there may be a time conflict between the scheduling of a maintenance action and the scheduling of plant production. For example a maintenance action may require that the plant stop all or part of its production or produce products with a lesser quality while maintenance is being performed. As can also be appreciated stopping all or part of the production in the plant impacts the revenue of the enterprise. In addition there is the cost to the enterprise associated with the personnel, tools and parts needed to perform the maintenance.

Please delete in their entirety the first and fourth paragraphs of the Summary of the Invention as amended by the Preliminary Amendment filed on January 6, 2003.

In the Description of the Drawing as filed please add:

a) after the description of Fig. 1 the following new paragraphs:

Fig. 1a shows a block diagram for the comparison of the cost of a maintenance action versus the potential action of not performing the maintenance work.

Fig. 1b shows a flowchart for the method implemented in module 16 of Fig. 1.

b) after the description of Fig. 2 the following new paragraphs:

Fig. 2a shows in flowchart form the functions performed by CMMMS 24 and interface 26 of Fig. 2.

Fig. 2b shows a flowchart for the functions performed by PS 22, CMMS 24 and interface module 26 in response to the receipt of a MT.

Please amend the Description of the Preferred Embodiment(s) as follows:

a) the paragraph that starts at line 2 on page 8 of the

application as filed as follows:

In general the options to be considered in response to ~~an~~ a MT are decisions about when and if the maintenance of the affected part of the plant should be started, and how to schedule the production to use the available parts of the plant. Each option may have associated with it as described above an impact, which may be economic or otherwise, on plant revenue. The software system of the present invention allows for the calculation of the impact of a number of different options and then indicates the impact, economic or otherwise of each such option. The decision to implement an option can then be made automatically or manually by an operator upon the suggestion of the system.

b) the paragraph that starts at line 27 on page 8 of the application as filed as follows:

Enterprise 10 further includes a module 16 that receives as inputs MTs 18 and POs 20. The MTs 18 may be received from ~~an~~ a source other than CMMS 14 or may be generated by the CMMS 14 as for example by a periodically occurring maintenance action which is managed outside of CMMS 14.

c) the paragraph that starts at line 18 on page 9 of the application as filed as follows:

Of course any suitable criteria other than economic can be used to define the solutions. ~~a~~ While an economic criteria may be referred to in describing the preferred embodiments as the criteria that is used to define the solutions that reference should be not used in any way to limit the scope of the present invention only to the use of that criteria to define the solutions as any other suitable criteria that allows a comparison of producing or not producing a product, doing or not doing maintenance etc. may be used to define the solutions.

d) the paragraph that starts at line 33 on page 9 of the application as filed as follows:

As can be appreciated the solution is organized around the profitability of the plant and may be expressed in terms of

money. To arrive at a solution a comparison must be made as is shown in block 9 of the block diagram of Fig. 1a between the costs of a maintenance action versus the potential costs of not performing the maintenance work and as is described below the situation at the plant. The potential cost needs to take both positive and negative factors into account.

e) the paragraph that starts at line 18 on page 12 of the application as filed as follows:

A simple implementation for the method in accordance with the invention that is used by module 16 is described below. This implementation is based on the "Branch and Bound" approach described by Jan Jonsson and Kang G. Shin in "A ~~Parametrized~~ Parameterized Branch-and-Bound Strategy for Scheduling Precedence-Constrained Tasks on a Multiprocessor System" published by the IEEE in the *Proc. Of the Int'l Conf. On Parallel Processing*, August 11-15, 1997, Bloomington, IL, pp. 158-165.

f) the paragraph that starts at line 25 on page 13 of the application as filed as follows:

The steps that the method implemented in module 16 follows in searching for a solution for this embodiment are shown in the flowchart of Fig. 1b and are as follows:

1. Select node 0 (all tasks unallocated) - 11 of Fig. 1b.
2. Calculate plant availability for the selected node according to the present maintenance scheduling - 13 of Fig. 1b.
3. Allocate the first unallocated task (either production or maintenance) to each possible resource, in the first possible time-slot, compatible with the plant availability and generate new nodes as a result of this allocation 15 of Fig. 1b.

4. If there are still unallocated tasks, go back to step 2 - 17 of Fig. 1b.

5. For each *goal* node, calculate the *value* - 19 of Fig. 1b.

6. Select the solution with higher *value* - 21 of Fig. 1b.

g) the paragraph that starts at line 11 on page 15 of the application as filed as follows:

Node 0: This is the start node. The fact that the MT is unallocated results in the unavailability of R1 from week 3 onwards.

h) the paragraph that starts at 20 on page 15 of the application as filed as follows:

Node 1.1: This node shows one option for allocating allocate T2. In this option since T2 takes only two weeks it is allocated to ~~T1~~ R1 during w1 and w2.

i) the paragraph that starts at line 19 on page 16 of the application as filed as follows:

It should be appreciated that in the example given above an arbitrary sequence for allocating the tasks T1, T2 and the MT has been selected. As those skilled in the art can appreciate more complex criteria for selecting an order of task allocation can be considered. As is shown above, all of the solutions that can be generated according to a determined sequence of allocation have been evaluated. Criteria may exist to avoid expanding all of the branches of the trees thus reducing the computational effort.

j) the paragraph that starts at line 18 on page 17 of the application as filed as follows:

While the decision by CMMS 24 on the new maintenance schedule may be automatic it will typically require a human decision. Upon acquisition of the new MT 18, CMMS 24 performs its own analysis (which may be totally automatic or may require

human decisions) in order to determine if there is any possibility to fit this maintenance request into the present production maintenance schedule. If CMMS 24 can fit the maintenance request into the present production schedule then no additional modification of the production schedule is needed. If CMMS 24 cannot fit the maintenance request into the present schedule a modification of both the production schedule and the maintenance schedule is expected. The module 26 shown in ~~in~~ the embodiment of Fig. 2 functions in accordance with the present invention to reduce or even resolve the conflict between PS 22 and CMMS 24.

k) the paragraph that starts at line 35 on page 17 of the application as filed as follows:

The module 26 in accordance with the present invention provides at least the interface to let CMMS 24 and PS 22 communicate with each other. In particular, module 26 after receiving from CMMS 24 at least the information on the new maintenance action to be performed as a result of the new MT, sends to PS 22 a "dummy production" or "blocking" order. <u>These functions are shown in the blocks 25 and 27, respectively, of the flowchart of Fig. 2a.</u> The dummy production or blocking order allows PS 22 to convert a maintenance request into a production schedule. Module 26 is also, from the information received from CMMS 24, able to determine the parts of the plant that are not available for production, the parts that are available with limitations in performance, quality, type of possible usage etc.

l) before the paragraph that starts at line 27 on page 19 of the application as filed please insert the following new paragraph:

The operation described above of PS 22, CMMS 24 and module 29 is shown in the flowchart of Fig. 2b where decision block 26 determines if the CMMS can fit the MT into its schedule, in block 31 interface module 26 sends the blocking order to PS 22, in decision block 33 PS 22 determines if the order is

acceptable, in block 35 the PS proposes a new time slot to the CMMS 24 if the order is not acceptable, in decision block 37 the CMMS 24 determines if the new time slot is acceptable, in block 41 the CMMS 24 sends a new schedule to PS 22 if the new time slot is not acceptable to CMMS 24, in decision block 41 PS 22 determines if the new schedule is acceptable and decision block 43 determines if the maximum number of iterations has been reached if in decision block 41 PS 22 has determined that the new schedule is not acceptable.

m) the paragraph that starts at line 30 on page 22 of the application as filed as follows:

If CMMS 24 determines that the proposed new schedule from PS 22 is not compatible with the factors used ~~ti~~ to schedule maintenance then CMMS 24 or module 26 sends a new request for a blocking order to PS 22. This transmission starts a new iteration or cycle of the CMMS 24 or module 26 sending a new request for a blocking order to PS 22 and PS 22 sending a new schedule for the blocking order to CMMS 24. This cycling between these devices continues until PS 22 and CMMS 24 can agree on the "production" schedule for the dummy production or blocking order.